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121 of this process. Furthermore, a survey of the anthropological literature indicated that with a few notable exceptions there were very few empirical data on primitive child training, although since this project was instituted considerable additional material has appeared.

The interest in child training and in pre-adult culture is relatively new in anthropology. Until the last fifteen years there were only scattered and casual references to primitive childhood in the ethnographic literature. Most of these reports merely gave a description of ceremonies at birth and naming and of initiation rites. Sometimes a description of the play group, or of children's games, and vague comments on how parents treated their children were also included. Infrequently fieldworkers like Kidd, Junod, and Milne[2] presented more detailed observations of the behavior of children in their monographs. Miller and Hambly[3] assembled the available data in comparative works on primitive education, which suffered from the paucity of good material.

The influence of Freud was responsible for awakening the interest of a number of anthropologists in the problem of child training. Malinowski[4] and later Richards[5] used data on primitive childhood to criticize certain aspects of Freud's theory and to verify others. Recently Kardiner[6] has used primitive data gathered by Linton to revise the implicit instinctivism of Freud and to verify his general theory of personality development. The pioneer in the gathering of data on primitive childhood, and one who has probably had the greatest influence on the later fieldworkers who have become interested in this problem, is Margaret Mead.[7] Her work was

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[2] D. Kidd, *Savage Childhood* (London, 1906); H. A. Junod, *The Life of a South African Tribe* (Neuchatel, 1912); Mrs. L. Milne, *The Home of an Eastern Clan* (Oxford, 1924).

[3] N. Miller, *The Child in Primitive Society* (New York, 1928); W. D. Hambly, *Origins of Education among Primitive Peoples* (London, 1926).

[4] B. Malinowski, *Sex and Repression in Primitive Society* (London, 1927).

[5] Audrey Richards, *Hunger and Work in a Savage Tribe* (London, 1932).

[6] Abram Kardiner, *The Individual and His Society* (New York, 1939).

[7] Margaret Mead, *Coming of Age in Samoa* (New York, 1928); *Growing Up in New Guinea* (New York, 1930); *Sex and Temperament in Three Savage Societies* (New York, 1935).

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also in part instigated by Freud's theories, and in part by the cultural relativism of Boas. She demonstrated unequivocally that personality and temperament are determined by child rearing, and vary from society to society. Other fieldworkers, notably Kluckhohn,[8] Du Bois,[9] and Gorer[10] have given further documentation to this point of view and in addition have made contributions of their own to the theory of the relationship between child training and personality development in primitive societies. Finally Erikson,[11] a practicing psychoanalyst, has turned his attention to this problem and has reported on fieldwork which he did among the Sioux.

Following Malinowski's functional approach to primitive education[12] a number of his students have given excellent descriptive accounts of primitive education. Outstanding among these have been Firth[13] and Evans-Pritchard.[14] In addition Fortes,[15] Hogbin,[16] Wedgewood,[17] and Raum[18] have written special accounts of primitive education from a functional point of view.[19]

Since but few of these fieldworkers had concerned them-

[8] C. Kluckhohn, "Theoretical Bases for an Empirical Method of Studying the Acquisition of Culture by Individuals," *Man*, 89, 1939; Paper read before Monday Night Group, New Haven, 1940.

[9] C. Du Bois, Papers read at Eastern Sociological meetings, 1940, and Yale Anthropology Club, 1940.

[10] G. Gorer, *Himalayan Village* (London, 1938).

[11] E. H. Erikson, "Observations on Sioux Education," *The Journal of Psychology*, VII (1937), 101–156.

[12] B. Malinowski, *The Sexual Life of Savages* (New York, 1929).

[13] R. Firth, *We, the Tikopia* (New York, 1936).

[14] E. E. Evans-Pritchard, *Witchcraft, Oracles, and Magic among the Azande* (London, 1937).

[15] M. Fortes, "Social and Psychological Aspects of Education in Taleland," *International Institute of African Languages and Cultures*, Memorandum XVII, 1938.

[16] I. Hogbin, "Education at Ontong Java, Solomon Islands," *American Anthropologist*, XXXIII (1931), no. 4, pp. 601–615.

[17] C. H. Wedgewood, "The Life of Children in Manam," *Oceania*, IX (September, 1938), no. 1.

[18] O. F. Raum, *Chaga Childhood* (London, 1940).

[19] This brief survey of the main trends of fieldwork on primitive childhood makes no pretense of completeness. For the most complete bibliography on the subject see J. Gillin, "Personality in Preliterate Societies," *American Sociological Review*, IV (1939), 681–702.

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The Kwoma are a mountain-dwelling people. Except for the southeastern slope of Ambunti Mountain, site of the Ambunti Police Post,[1] they control the entire segment of the Peilungwa Range which lies northwest of the Sepik. The territory they claim also includes enough of the sago swamps at the foot of these mountains to provide them with more than enough of the sago flour which is a staple in their diet. They are surrounded by swamp and river tribes. Living in the sago swamp somewhat to the northwest are the Amiki and Sowal people, and on a little group of hills to the northeast, separated by the swamp from the main range, live a half-dozen households who call themselves Yelagu. The Malu, Yambon, and Yessan, the river neighbors of the Kwoma, are linguistically and culturally distinct from the mountain people. When they converse with each other, each speaks his own language, which the other understands.

The Kwoma tribe consists of four subtribes: the Tangwishamp, the Urumbanj, the Koriasi, and the Hongwam.[2] Their territories are contiguous. The Hongwam, who dwell nearest Ambunti, were the group from which nearly all the data here presented were gathered, only a brief trip being made to the other three subtribes. These four subtribes, although speaking the same language and bound by not a few ties of trade and intermarriage, are distinct social entities and are not above carrying on head-hunting raids against one another.[3] More frequently, however, they will band to-

[1] While the fieldwork on which this report is based was being carried on, Ambunti was still a functioning administrative post. Since then this station has been moved to Marui, approximately thirty-five miles downstream, to facilitate communication with the District headquarters at Wewak.

[2] The terms "tribe" and "subtribe" have been adopted here although it might be objected that, since there is no political organization which unites these four groups, it is improper to call the Kwoma a tribe.

[3]

Native Name	*Name Appearing on Maps and in Australian Record Books*	*Population*
Hongwam	Waskuk—Bangus	374
Koriyasi	Chissaramian (Shasberman)	116
Urumbanj	Urumbans (Urumbanji)	108
Tangwishamp	Tangunjambi (Taunjambi)	*circa* 300

Hongwam is referred to as Washkuk by M. Mead in *Sex and Temperament* and in "The Mountain Arapesh: I. An Importing Culture," *Anthro-*

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gether for raids against threatened or actual encroachments by non-Kwoma peoples.

Each subtribe is divided into several hamlets, most of which are clustered about a "house tamberan" or men's ceremonial lodge. A hamlet is usually named after its house tamberan. The arrangement of dwellings in a hamlet is determined by hereditary ownership of land and also by the fact that level sites are very few, owing to the precipitous nature of the mountain slopes.

The patrilineal sib is the primary descent group among the Kwoma. Although all the adult males of a hamlet are members of the same sib, the hamlets of a given sib are not necessarily contiguous, i.e., the descent groups are not completely localized. All the members of a sib theoretically descend from a common totem ancestor. Thus the three sibs of Hongwam subtribe are the *Wanyi*, who descend from a pig, the *Hayamakwo*, who descend from a great fish hawk, and the *Tug*, who descend from the sago palm. Each of these sibs has a great many subsidiary totems, some of which are claimed by more than one sib. These lesser totems are variously identified with birds, reptiles, fish, trees, plants, and parts of the human body.

Each sib is divided into lineages each of whose component families claims descent from a legendary hero. The men of a lineage usually build their dwellings in a cluster which forms part of a hamlet. A lineage is composed of several family lines whose members descend from a common grandfather. The men of a single family line also build their houses near one another. The smallest unit and the most compact is that formed by the sons of a father.

Thus a man remembers four ancestors in the male line: his father, his grandfather, a culture hero who is thought to have been his great grandfather, and, finally, his totem ancestor who lived—according to Kwoma myth—back at the

[113] *pological Papers of the American Museum of Natural History*, Vol. XXXVI, Pt. III. The maps above referred to are: *Map of Sepik District* compiled by the Department of Lands and Mines, Rabaul, October, 1935, and *Sketch Map of Portion of Sepik District*, Sydney, 1935, Oil Search Ltd. Geological Survey.

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beginning of the world. Each of these ancestors is shared by a descent group ranging in size from the children of a father to the descendants of a totem. 611

The Kwoma kinship system is of the Omaha type.[6] Parallel cousins are all classed as siblings while cross cousins are called *mother*[7] or *maternal uncle* if they are related through the mother (i.e., mother's brother's children), and *nephew* if they are related through the father (i.e., father's sister's children). Age distinctions are made between siblings of the same sex but not between siblings of the opposite sex. Thus a boy has two terms, *elder sibling* and *younger sibling*, to refer to his brothers but classes all his sisters as *sister*. A girl uses *elder sibling* and *younger sibling* for her sisters but uses *brother* to refer to her brothers. The same terms are used and similar distinctions are made between parallel cousins. In the parental generation the father and his brothers are divided into three categories: *father*, *younger uncle*, and *elder uncle*, while father's sisters are called by a single term, *paternal aunt*. Similarly a mother's sisters are classed as *younger aunt* and *elder aunt*, while her brothers are all termed *maternal uncle*. There are two terms for grandparents, *paternal grandparent* and *maternal grandparent*. All ancestors above this are called by a single term, *ancestor*. Own children and the children of *elder siblings* and *younger siblings* are called *son* or *daughter*. A man calls his sisters' children "*nephew*," and a woman calls her brothers' children "*niece*." Grandchildren and grandchildren of siblings are called *grandchild*. 601

The sons and sons' sons of the mother's brother are also called *maternal uncle*, and his daughters and sons' daughters are called *mother*. The children of a mother's brother's daughter or of a mother's brother's son's daughter (i.e., of a *mother*) are classed as siblings. The descendants of one's

[6] Described by L. Spier in "The Distribution of Kinship Systems in North America," *University of Washington Publication in Anthropology*, I, 69–88; and by G. P. Murdock (in MS.). [113]

[7] Italicized terms are the nearest English equivalent to the native term and refer to Kwoma kinship categories. Terms not italicized are used in their English sense.

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764 Kwoma culture defines the persons who shall dispose of and mourn for the dead. The relatives of the deceased gather to place his body on a platform where it is exposed for several months. Then the members of the subtribe attend a second funeral, for the ceremonial disposal of the bones, and a feast, after which the adult males celebrate the end of the mourning period at the house tamberan with gong, flute, and dance.

571 These, then, are the variously constituted groups and categories of persons as defined by Kwoma culture. They provide the framework into which a child is born and in terms of which he has to learn to act.

114 The hamlet in which our house was built, and hence the 621 one from which we gathered most of our information, is 361 called Rumbima. It is situated on a mountain ridge near the 614 geographical center of Hongwam subtribe. (See map.) The 613 men of Rumbima claim descent from the giant fish hawk and 773 hence belong to the *Hagamakwo* sib. They divide themselves into two lineages, the larger claiming descent from the culture hero Mangwiyow, and the smaller from Wasahof.

621 Mangwiyow is reputed to have had five sons, each of whom 613 sired a family line. Our house was built among the dwellings 592 of the living descendants of these five brothers. The oldest [114] living male in the line whose houses were nearest us was [595] named Wof (household 1, family line 2).[18] He dwelt a few [597] yards from our hut with his first wife Kaya, his levirate wife Chinuwa, his adopted son Mey (a nephew), his adopted daughter Buka (a niece), and his stepson Kum (Chinuwa's [754] son by her former husband). Wof is a man of about forty-five[19] whose skin is grey and scaly from tinea. He has the reputation of being a powerful sorcerer.

621 Adjacent to Wof's house is the rather dilapidated dwell- 592

[18] Households are presented both on the map and on the household chart. Family lines may be found on the lineage chart.

[805] [19] Since the Kwoma had no method of counting years, the ages given are [807] rough approximations based on the physical appearance of the individual and on his estimated age at the time of the tribe's first fleeting contact with [113] Europeans, the members of the Behrmann expedition of 1913. (See W. Behrmann, *Im Stromgebiet des Sepik* [Berlin, 1922].)

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869 754 609 264 pertains to food but is concerned with how and where a person can safely eat rather than with what he can eat. A child is taught to be very careful with his crumbs and other food leavings. He is warned that, if someone steals such material and performs a certain magical rite upon it, he will sicken and die, and that, therefore, he should be particularly careful if he eats anywhere but in his own house. It is difficult for a thief of sorcery material to steal leavings from the floor or rubbish heap of your own dwelling because he would be killed on the spot if he were caught at it, but a sorcerer can pick up food leavings left in the forest with little danger of discovery. [602] [571] Since relatives may not sorcerize one another, one may eat in their houses if one is careful, but parents warn children never to eat in the house of a non-relative, for a crumb may fall, no matter how careful they may be, and non-relatives are not to be trusted. A child is warned that his blood is [826] another material which must be kept from the hands of sorcerers: therefore, if he cut himself, he should take care to catch or wipe up the blood in a leaf which he should burn or [825] hide in a safe place. He is also warned that his blood "goes into" any animal that he kills, so that he must be careful not to spill the blood of such an animal.

869 754 152 [521] A child does not have to be warned frequently about the dangers of sorcery because his parents show such fear of it.[1] Whenever anyone is sick in the hamlet, practically the only subject of conversation is sorcery. Adults speculate about the identity of the sorcerer and curse those whom they suspect. Everyone is worried and emotional. The almost hysterical reaction of his parents to sorcery impresses the seriousness of the danger upon the child so vividly that it is not difficult to teach him to be careful.

867 264 In addition to learning that he may not eat things naturally poisonous nor food contaminated by sorcery, the child is conditioned against eating food which belongs to someone else. In other words, he comes face to face with the property

[113] [1] Emotional attitudes as well as overt habits are subject to imitation. See N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. xiv.

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statement of the essential conditions for habit formation has been adapted from the theories of Pavlov, Thorndike, and Hull by Miller and Dollard.[1] Since this adaptation has been developed for use in the field of social learning, it precisely fulfills the requirements of this chapter. In order to learn, an animal must be motivated, he must act, he must perceive the cues that are present during his action, and he must gain satisfaction. In outline form the Miller-Dollard paradigm may be presented thus: There must be a

A. *Drive* or drives of sufficient intensity to produce a
B. *Response* or series of responses made in the presence of
C. *Cues* which stimulate the animal's receptors until a[2]
D. *Reward* reduces the intensity of the drive.

Whenever the above conditions occur, the bond which connects the drives and cues to the response is strengthened. That is, when the organism again experiences the same drive and the same cues, it will have a greater tendency to make the same response. In the early stages of learning the increment in the strength of the habit is large, but after the conditions represented in the paradigm have been frequently repeated, and the habit well established, the increments become progressively smaller. Each time the conditions expressed in the paradigm are repeated and the habit thereby strengthened, reinforcement may be said to have occurred.[3]

The drives which are of greatest importance in the process of socialization are: hunger, thirst, sex, colon distention, bladder distention, heat, cold, fatigue, and pain.[4] Each of these drives may vary in intensity, and this variation is a function of the interaction between the organism and the environment.

[1] See N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. ii.

[2] Cues are also present during and after the reward, but these are not relevant to the formation of the habit in question.

[3] See N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. ii; E. R. Hilgard and D. G. Marquis, *Conditioning and Learning* (New York, 1940), chap. 4; C. L. Hull, "Outline of a Systematic Theory of Learning," *Educational Psychology Yearbook* (in press).

[4] For a recent statement of socially relevant drives see H. A. Murray, *Explorations in Personality* (New York, 1938), pp. 67–89.

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121 The intensity of the hunger drive depends both upon metabolic processes within the organism and upon the amount and kind of food provided by the environment. The hunger becomes more intense as the number of hours of food deprivation increases. It becomes strong more quickly when the expenditure of energy increases the rate of metabolism. Its intensity is an inverse function of the amount of food previously ingested and depends in a complex manner upon the physiological needs of the organism and how adequately they have been satisfied by the types of food available. In a similar way the other drives vary in intensity according to processes which take place within the organism and according to factors in the external environment which need not be detailed here.[6]

Acquired drives, as well as the above-listed basic ones, motivate behavior and belong in category A of the Miller-Dollard paradigm. Although these acquired drives are most frequently found to be the immediate impelling force for social habits, their intensity and even their very existence depend upon a continued relationship with basic drives.[6] It is not necessary here to describe the manner in which acquired drives come into being, but simply to state that whereas basic drives depend upon the relationship between the organism and the environment, acquired drives depend, in addition, upon the past experience of the organism. In other words, acquired drives must themselves be learned. Fear,[7] anger,[8] the wish for prestige, the desire for money, the

[113] [6] The best evidence for the factors which govern the intensity of drives has been adduced by the physiologists; for hunger see W. B. Cannon, *The Wisdom of the Body* (New York, 1932); for a general statement see C. P. Richter, "Animal Behavior and Internal Drives," *The Quarterly Review of Biology*, II (1927), no. 3, pp. 307–343; for experimental evidence on drives see P. T. Young, *Motivation in Behavior* (New York, 1936).

[113] [6] For a detailed account of acquired drives see N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. iv.

[113] [7] See S. Freud, *The Problem of Anxiety* (New York, 1936); E. Zinn, "Anxiety, Clinically Viewed," and O. H. Mowrer, "Anxiety, Some Social and Psychological Implications," *Papers Presented before the Monday Night Group* (1939–40), pp. 116–144, Institute of Human Relations, Yale University.

[115] [8] See John Dollard, *et al.*, *Frustration and Aggression* (New Haven,

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wish for words of praise, the craving for affection, and the various conditioned disgusts and appetites are examples of acquired drives. 121

The second essential of learning is that a response shall be made. Responses may be gross muscular, such as walking, running, throwing a spear; glandular, such as the secretion of gastric juices; verbal, such as issuing a command; or ideational, such as thinking, fantasying, or planning. In fact, any activity of the organism falls in the category of a response.

Cues, the third essential for learning, are those stimuli which act as guides in the performance of any response. They tell the organism when, where, and how to act. They may originate from objects outside the organism, such as patterns of light, sound, smell, taste, and touch, or they may arise within the organism, as in the case of feelings of hunger, thirst, bladder and colon distentions, stomach cramps, and stimuli arising from the movement of muscles.[9] A cue is thus any stimulus which is appreciated by an organism and which acts as a guide in the learning or performance of a habit.

Reward, the final essential condition for the formation of a habit, may be defined as an event which reduces the intensity of a drive. The ingestion of food reduces the hunger drive; drinking reduces thirst; sexual orgasm reduces the sex drive; defecation and urination reduce colon and bladder distentions; escape from heat, cold, fatigue, and pain effect the reduction of the heat, cold, fatigue, and pain drives.[10]

Since there are acquired drives, there are also corresponding acquired rewards. In so far as one is motivated to strive for social goals, he gains satisfaction from achieving them. Safety, high status, the destruction of enemies, the gaining

1939); N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. iv. [113]

[9] Both drives and cues are stimuli. When the intensity of a stimulus is its most important function, it may be spoken of as a drive, when it functions primarily as a guide, it may be referred to as a cue.

[10] The response which is most closely correlated in time with a reward is called a goal response.

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tive girl, verbal permission from her, the environmental scene which has both public and secluded spots, etc.; the reward is sexual orgasm, satisfaction of sex appetite, and anxiety reduction. The adult habit of beating gongs against sorcery when a relative becomes ill may be used as a final illustration of the paradigm. The man's drives in this case are fear that he, too, may become ill unless the sorcery is stopped, fear that his relatives may die, and anger at the sorcerer; the response is going to the house tamberan and beating the gongs in a particular way; the cues are those which indicate that a relative is sick; and the reward is a reduction in fear and anger. Thus, although the habits become more and more complex[12] as the individual matures, the four essentials of learning and performance pertain to the behavior of individuals of all ages.

A Kwoma child learns but a small part of his cultural habits by free trial and error, that is, without some member of his society guiding and directing him.[13] Were he to do so, he would learn those habits which were most rewarding to him and to him alone.[14] This, however, is not what actually happens. He is forced to learn, not the habits which might be most rewarding to him alone, but the habits which are specified in the culture as being best. For generations before his birth his forbears have tried various ways of dealing with one another and with their environment. Those habits which were successful have persisted in the form of customs, while those which have failed have either suffered extinction or passed out of existence with the untimely death of those who

[12] It is not the particular purpose of this chapter to detail how complex habits are learned, although this is a crucial problem. Hull has suggested a very important mechanism as a partial explanation in his theory of the assembly of behavior segments. This theory, together with the integration of habits on a cultural level, should go far toward the solution of the problem. See C. L. Hull, "The Mechanism of the Assembly of Behavior Segments in Novel Combinations Suitable for Problem Solution," *Psychol. Rev.*, XLII (1935), 219–245.

[13] Limited trial and error operate in nearly all learning situations. The concept of free trial and error is used here to mean learning which takes place without the guidance or interference of any other person.

[14] See C. L. Hull, "The Concept of the Habit-Family Hierarchy and Maze Learning," *Psychol. Rev.*, XLI (1934), 33–54, 134–152.

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121 tried them.[18] For various reasons this accumulation of adap-
861 tive habits is passed on to the child. He does not simply learn to get along in the world; he is socialized. Thus an essential set of conditions for social learning is the behavior of the socializing agents. The remainder of this chapter will be devoted to an analysis of these conditions and their relation to social learning.

Before the analysis of teaching techniques is undertaken, several terms which are to be used should be defined. The terms "teacher" and "pupil" will be employed in a special sense, the former to mean anyone who attempts to change the habit structure of another person, the latter, any person whose habit structure is being so changed. Although Kwoma parents most frequently play the rôle of teacher, with their children as pupils, the teacher-pupil relation is not by any means restricted to them. Co-mothers, siblings, *paternal uncles* and *aunts*, and other relatives frequently play the rôle of teacher as well. The concept of teacher will also be extended in this context even to an adult who tries to influence the behavior of another adult. Although such behavior may be considered an act of aggression or coöperation, as the case may be, it is also a teacher-pupil relationship if a habit of the pupil is thereby strengthened or weakened.

A second set of terms will be used for responses, which will be characterized as "right," "not right," "wrong," and "not wrong." A right response is a specific act which the teacher wishes the pupil to make, whereas not right responses are all those acts which are incompatible with the right response under the given conditions. Similarly, a wrong response is a specific act which the teacher wishes the pupil not to make, and not wrong responses are all those acts which are incompatible with the wrong response under the given circumstances. These concepts may be illustrated from the cases which will be reported in detail below. When Wof punished Buka for failing to gather firewood, "getting firewood" was the right response, while playing, sleeping, eating, gossiping,

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[18] See A. G. Keller, *Societal Evolution* (New York, 1929); W. G. Sumner, *Folkways* (Boston, 1906), chap. v.

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ously sprained her ankle and was incapacitated, he told his adopted daughter, Buka, to replenish the supply of firewood, which was very low. When he returned late that afternoon, he discovered that Buka had not obeyed his command and that there was not even enough wood to cook the afternoon meal. He, therefore, called to Buka and, telling her that she was lazy and disobedient for not getting the wood, struck her several times on the back. Buka cowered and ran away crying. Wof continued for some time to scold her in a loud and angry voice. Since I observed her a few days thereafter going by my house with her net bag filled with firewood, the punishment was presumably effective.

In order not to make the error of taking the effect of punishment on the habit structure of a pupil for granted, it is expedient to analyze the above case in detail in accordance with the paradigm of learning. It can be seen from such an analysis that the drive was that of pain from a blow on the back; the responses were running away, and crying; the cues were the sight of Wof, his words of criticism for not having obeyed his command to get firewood, and the memory of his command; the reward was escape from the pain of the blow. From this analysis it is evident that the habit which was reinforced was that of running away and crying when the cues described above were present. Wof, presumably, did not wish to teach her this habit but rather that of getting the firewood when he told her to. Although the punishment evidently did have this effect, it has not yet been shown how this came about. It is necessary to introduce the principle of anticipation to explain it.

By the principle of anticipation[18] any response which is attached by reward to the last of a temporal series of cues tends to occur earlier in the series. Thus when Wof again commands Buka to get fire wood she will have a tendency to run away, to cry, and to make various visceral responses induced by pain. In other words she will have anxiety.[19] If she

[18] C. L. Hull, "Goal Attraction and Directing Ideas Conceived as Habit Phenomena," *Psychol. Rev.*, XXXVIII (1931), 487–506.

[19] Freud defines anxiety as the anticipation of pain. See S. Freud, *The*

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were to run away or cry under these circumstances, she would be doing something other than getting firewood. In other words she would be making not right responses as implied by Wof's statement of the reason for the punishment at the time of its occurrence. To run away and cry would therefore tend to raise her anxiety rather than to reduce it. Similarly, if she played, went to sleep, ate, or made any response other than getting firewood, her anxiety would not be reduced, for all such acts have been implicitly defined by her father as "not getting firewood responses." The only way in which she can reduce her anxiety is to get the firewood. When she does this and only when she does this, the real effect of punishment as a teaching technique becomes clear. The drive is anxiety; the response is getting firewood; the cue is her father's command; and the reward is the reduction of anxiety. It is thus that Wof's punishment was not in vain and did accomplish the effect that he desired.

The following case also illustrates the use of punishment by a Kwoma teacher. One afternoon, when several Rumbima children and adolescents were playing in front of my house, the ball which they were kicking bounded into the bushes. Gwiyap, an adolescent, commanded Ham, a child, to fetch it, and when he refused kicked him in the buttocks. Ham ran away crying. Several days later the situation was repeated, and this time Ham ran away as soon as Gwiyap issued the command. Weeks later I observed Ham obediently fetch the ball, at first only after he was ordered to and later on his own initiative.

In the above case the drive was the pain from Gwiyap's kick; the response was running away and crying; the cues were the ball in the bushes, the sight of Gwiyap, and the sound of his commands; the reward was escape from the pain

[113] *Problem of Anxiety* (New York, 1936). O. H. Mowrer has developed this thesis and urged that anxiety is a learned response based upon an anticipatory response to pain. See O. H. Mowrer, "A Stimulus Response Analysis of Anxiety," *Psychol. Rev.*, XLVI (1939), 553–565. Miller has shown that the acquired drive value of anxiety is based upon the response-produced stimuli of an antedating pain reaction. See N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. iv.

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of being kicked. From the principle of reinforcement it could 121
be predicted that Ham would learn to run away when these 861
cues were again present. Observation bore this out. It could further be predicted that he was also reinforced on this occasion, the reward being escape from anxiety. However, just as Wof presumably did not wish to teach Buka to run away, so Gwiyap wanted to teach Ham to fetch the ball for him rather than to escape. That he was successful in doing so remains to be explained. It has been shown in a previous chapter that Kwoma children spend most of their time playing with other children, an activity which is apparently rewarding to them and hence one which comes to have the value of an acquired reward. Exclusion from playing with one's fellows should thus have an acquired drive value. There is no evidence that Ham was exceptional in these respects. Therefore each time that he ran away, although by so doing he achieved the reward of the reduction of pain or anxiety, he was thrown into another situation of discomfort. The acquired drive to play with his fellows was aroused. This placed him in a conflict situation:[20] to play aroused the fear of being kicked; not to play aroused the discomfort arising from being excluded from the game. Ham finally solved this dilemma by obeying Gwiyap's command. On this occasion, if the above analysis is correct, the drives were the fear of being kicked and the wish to play with his fellows; the response was fetching the ball; the cues were the ball in the bushes and Gwiyap's command; and the rewards were escape from being kicked and joining in the ball game. Thus Gwiyap's kick finally did have the desired effect, but only after time had elapsed and after a rather complicated series of psychological events had occurred to Ham.

This analysis suggests that another factor may have been operating in the case of Wof and Buka. She might have learned not only to run away from Wof, but to stay away from him. Unless some relative were willing to care for her,

[20] For a discussion of the factors governing conflict see N. E. Miller and J. S. Brown, "Conflict, an Analysis of Approach and Avoidance" (in preparation). [113]

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121 861 [192] [196] the meaning of fighting, beating, spearing, and killing. *Fiju* was the word used to denote the fight between Daw and Kwal in which the latter received a bad scalp wound; to denote Mey's action when he struck Fit on the back with a burning firebrand; by hunters when they successfully spear and kill a pig; and to killing someone in a head-hunting raid and to in-group murder. From these contexts, many of which have been directly experienced and all of which are known to Kwoma pupils, it is evident that the threat *anafa fiju* should arouse anxiety. Furthermore, teachers usually carry out their threat by beating the pupil if he does not heed. From these two sources, therefore, a threat gains the power to evoke fear in the pupil.

The following case will serve to illustrate threatening as a technique of teaching. Kum, while playing under the porch at Mar's house one afternoon, picked up a broom and started carrying it outside. Kwiya and Awa, his older *sisters*, both noticed him and told him to put it down. Kum did not heed at first, but when Kwiya threatened to beat him unless he did so at once, he quickly dropped the broom. In this case the drive was the fear of being beaten; the response was dropping the broom, the cues were the instructions to drop the broom given by Kwiya and Awa, the sight of objects and people under the porch, the feeling of the broom in his hand, etc.; the reward was the reduction of the fear of being beaten. It can be seen that the effect of a threat on learning is somewhat different from the effect of punishment and scolding. In the first place, the right response is made immediately rather than on a subsequent occasion, and, in the second, the motivation is stronger, since a fear-evoking person is present when the pupil makes the right response and the reinforcement is consequently greater.[25]

121 626 602 Social control is largely effected by means of threats. In Kwoma the threat of breaking relationship is one of the more important techniques by which an adult can control the be-

[113] [25] The amount of reinforcement is probably a positive function of the strength of the drive. See C. L. Hull, "Outline of a Systematic Theory of Learning," sec. v, *Educational Psychology Yearbook* (in press).

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121 86 teachers which does not depend upon pain or fear is that of inciting. This consists of presenting to the pupil the verbal symbols which have been associated with reward along with instructions as to how to achieve such reward. The following [262 177] case will serve as an illustration. At a coöperative work feast given by Nambomai, my Yambon houseboy, one of the foods prepared was stewed apricots. Gwiyap took it upon himself to teach some of the adults present to eat this food, which was hitherto unknown to them. To do this he said: "It is good. It tastes like ripe bananas." Afolawanj, an old man who was somewhat of a clown, was thus tempted to try some, but he had no sooner taken a mouthful than he spit it out, and refused to eat any more.

In the above case the drive was the appetite evoked by Gwiyap's statement that the stewed fruit tasted like ripe bananas; the response was eating; the cues were Gwiyap's instructions to eat and the sight, smell, and taste of the fruit; the reward was absent. Since there was no reward in this sequence it could be predicted that learning would not take place. The fact that Afolawanj did not again try the fruit is evidence that this was indeed the case. It could also be predicted that Afolawanj would have a decreased tendency to follow Gwiyap's instructions,[30] but I do not know whether or not this was true.

War's attempt to incite Mes and Mar provides a more dramatic instance of the use of this technique. When the Hongwam were planning a head-hunting raid on the Sowal, War, who was the prime mover in the affair, spent a whole evening at the house tamberan inciting Mar and Mes to go on the raid. He described to them all the advantages that they would gain from taking a head—that all the girls would want to marry them, that they could become members of *Nokwi*, that they would gain high prestige so that their words would be listened to at the court meetings, that their

[30] This follows from the principle of extinction. When a response is not [113] followed by a reward, the connection between this response and the preceding cues is reduced in strength. See E. R. Hilgard and D. G. Marquis, *Conditioning and Learning* (New York, 1940), chap. v; N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. iii.

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tions. Since both threats and instructions have been analyzed, it is not necessary to discuss commanding in detail, but it should be stated that it is an extremely important method of teaching.

Providing rewards, the third general category of teaching techniques, is also employed by the Kwoma. It consists of providing a reward after a pupil has made a right response. A teacher may use this technique after he has motivated and guided the pupil, or he may use it when either the motivation or the guidance or both have been supplied by some other agency. The general category of rewarding may be subdivided into helping, giving, and praising.

Kwoma teachers take advantage of the fact that a pupil can satisfy but few of his drives, either basic or acquired, without the aid of another person or persons.[35] Being helped is thus in many cases the *sine qua non* for achieving a reward. Teachers may, therefore, employ helping as a means of rewarding the right response of a pupil. They use this technique primarily to teach the pupil coöperative habits. In other words, teachers most frequently help a pupil after the pupil has helped them. The technique of helping is thus one of the important methods of transmitting that part of the culture which makes for in-group solidarity and reciprocity.[36]

Giving is closely allied to helping as a technique of reward, being used in the same coöperative context. If a teacher gives a pupil something, it is significant as a reward because the teacher has done the work of producing or otherwise obtaining the gift, and thus relieves the pupil of the necessity of doing the same himself. Gifts in Kwoma are of food, tools, or shell money. Barter and exchange are a form of reciprocal

[35] Malinowski has shown that all cultural habits are an integral part of institutions which imply the cooperative efforts of an organized group of persons for the satisfaction of a need. See B. Malinowski, "The Group and the Individual in Functional Analysis," *The American Journal of Sociology*, XLIV (1939), no. 6, pp. 952-54.

[36] Hull has suggested a psychological basis for this in the principle of reciprocal reinforcement. C. L. Hull, "Outline of a Systematic Theory of Learning," sec. ix, *Educational Psychology Yearbook* (in press).

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had previously experienced for not heeding realistic warnings; the response was avoiding the waterhole; the cues were the sight of the waterhole and Kar's instructions; and the reward was the reduction of fear. Since I had not been brought up in Kwoma society, Kar's warning did not evoke fear and I did not make the right response.

Although the technique of warning provides the basis for the inculcation of supernatural fears, several other factors play an important part in this process. One of these factors is the belief that supernatural dangers are similar to real dangers, a fact which strengthens the Kwoma child's fear of them by the principle of secondary generalization.[4]

Since *marsalai* are described as great snakes or crocodiles which live in the swamp, realistic warnings about snakes, crocodiles, and other dangerous animals would tend to generalize to these supernatural monsters. In other words, each time a Kwoma is reinforced for heeding a warning about an animal, particularly a snake or crocodile, he is also somewhat reinforced for heeding warnings about *marsalai*,[5] that is, unrealistic fears. A second source of generalization is that warnings about *marsalai* all concern disturbing their dwelling places. The common word for house is used to describe these supposed dwellings, so that all realistic warnings about trespassing in, and stealing from, the house of human beings also strengthen the warnings about *marsalai*. Finally, *marsalai* are described as being huge. Since large animals and

[4] If two objects are described by the same term, a person tends to respond to them both in a similar manner. Hull has described this as secondary generalization. See C. L. Hull, "The Problem of Stimulus Equivalence in Behavior Theory," *Psychol. Rev.*, XLVI (1939), 9–30. It is also discussed by Miller. See N. E. Miller and John Dollard, *Social Learning and Imitation* (New Haven, 1941), chap. v. Experimental evidence in support of this principle has recently been adduced by Dr. Jane Birge. See J. S. Birge, "The Rôle of Verbal Responses in Transfer" (Doctoral Dissertation, Yale University, 1941). G. P. Murdock has found empirical support for this principle in a study of the generalization of incest taboos by means of common kinship terms.

[5] Kwoma vivify their warnings about *marsalai* by telling children that the sounds they hear at the time of a ceremony are the voices of these monsters. The sounds are in reality produced by gongs, bull-roarers, and flutes, but this theory offers another avenue of generalization from animals to *marsalai* on the basis of the sounds which they both make.

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lowed him. Mey's behavior can be analyzed thus: the drive was fear caused both by my whistling and by the sight of Mar starting to run while he remained; the response was running after Mar; and the reward was the reduction of fear. Had not Mar run away first, Mey might have discovered some other means of reducing his fear, but by imitating Mar he learned to avoid ghosts in the same manner as his older *brother*. Kwoma pupils in a similar manner learn to avoid *marsalai*, to protect themselves from the dangers of sorcery, and to escape the dangers associated with blood. Thus imitation is an important mechanism for the transmission of supernatural beliefs and practices.

Chance as a factor in maintaining supernatural beliefs has long been noted by anthropologists and sociologists.* The data from Kwoma tend to support this theory. Storms occur so frequently that it would be extraordinary if one did not occasionally occur after a person has disturbed the dwelling place of a *marsalai*, and this would help to prevent the extinction of the habit of heeding. The following case illustrates this point. Yat had cleared a garden site near a large rock thought to be the dwelling place of a *marsalai*. When the time came to burn the dried brush and branches, a necessary step in the process of gardening, he expressed some anxiety lest this might anger the *marsalai* which lived in the rock, but nevertheless went ahead with his burning. That night there was a bad storm with a high wind, and Yat took this as proof of his belief that he had indeed angered the supernatural being. Wof, Gwiyap, and Mar all explained the storm in the same way. The next time that there was a bad storm, I said to Gwiyap: "Yat didn't disturb a *marsalai* today. How do you account for the storm?" Gwiyap replied: "Maybe Yat didn't, but someone else did. Probably it was one of those stupid people from Wanyi."

Chance also operates to support warnings about ghosts. Marok and Kar stayed visiting in a part of the tribe some distance from their home until after dark, thus not heeding

* See W. G. Sumner and A. G. Keller, *The Science of Society* (New Haven, 1928), vol. II, chap. xxi.

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not follow from the source specified. This could be expected to result, through the operation of the principle of extinction,[11] in a weakening of the habit of heeding this particular warning and in a functional discrimination between realistic and unrealistic dangers.[12] The fact that these unrealistic warnings are sanctioned by the community normally prevents such an event from occurring. Pupils are punished for not heeding warnings about *marsalai*, ghosts, sorcery, or blood, as is illustrated by the following case. Kwiya and Fit each bought a harmonica from me and began playing it around their house. Their *mother* warned them that this would bring ghosts. Neither of them heeded this warning, so the *mother* took matters in her own hands. She scolded them both severely and forced them to return their harmonicas to me. An even more striking case, perhaps, occurred when Mundik,[13] a youth who had not yet received his keloids of manhood, attended a funeral ceremony, thus ignoring the warning about the danger from the *marsalai* of the cult to those who are not yet initiated. Mundik was attacked and beaten by the members of the cult, and, after being tied hand and foot, was thrown into a near-by dwelling. Had it not been for our presence he might well have been killed.

Since social sanctions are, in the last analysis, responsible for the maintenance of supernatural beliefs, an inquiry might profitably be made into the problem of why parents take the time and effort to force children to heed warnings. It may indeed be asked why they even issue these unrealistic warnings. A detailed answer to the above questions is beyond the scope of this chapter, but a few suggestions can be made. In the first place, since the teachers have been brought up in Kwoma culture they do not distinguish between realistic and unrealistic dangers as such. Hence they believe that if a

[11] See chap. vii, p. 192, n. 30.

[12] If a response to a generalized cue does not achieve a reward, but the response to the original cue continues to do so, the organism learns to discriminate between the two cues and to react only to the one which leads to reward. See E. R. Hilgard and D. G. Marquis, *Conditioning and Learning* (New York, 1940), chap. viii.

[13] Mundik was a Yelagu who was staying with relatives at Kwoma.

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Thus, not only can the supernatural fears of pupils extinguish, but so also can the fears of the teachers become reduced in the same way, so that they no longer maintain these beliefs by sanctioning them.

The fact that Kwoma children can learn not to heed, and Kwoma parents to stop issuing and sanctioning unrealistic warnings, raises a serious question. Why does this not occur more frequently? Why, in the course of time, have not all these supernatural beliefs disappeared as a result of this process? The answer to this is suggested by one of the basic postulates of the functional theory of anthropology. Parents continue to issue unrealistic warnings and to sanction them because they form an integral part of one or more systems of beliefs, customs, and organized activities which, as a whole, satisfy a social need.[14]

The belief in *marsalai* forms a large part of the charter[15] of the yam cult.[16] *Marsalai* are believed to be present whenever this cult holds a ceremonial meeting and to bless those who participate. In playing the instruments of the cult, the members are producing a representation of the voices of these beings. After a ceremony, no man who has attended may have intercourse with his wife, because the powerful and dangerous influence of the cult *marsalai* still clings to him, and might injure her. Thus, were the belief in these monsters to disappear, the Kwoma would be forced either to provide a new *raison d'être* for their cult ceremonies or to give them up altogether. It is not necessary here to present a detailed account of the functions of the cult, but a few of them may be mentioned to show how important this institution is in Kwoma society. The most direct function of the cult seems

[14] See B. Malinowski, "The Scientific Basis of Applied Anthropology," *Reale Academia D'Italia*, XVIII (1940), 22.

[15] Every institution consists in part of the traditional purposes and reasons for its existence which are believed by the members of the personnel. Malinowski has called this the charter. See B. Malinowski, "The Group and the Individual in Functional Analysis," *American Journal of Sociology*, XLIV (1939), 952–954.

[16] The personnel, norms, and material apparatus of this institution can be gathered from the descriptive chapters. The charter and functions are stressed here because of their importance in this context.

Chapter I Orientation[1]

131 The Kwoma live in the Mandated Territory of New Guinea on the Prince Alexander Mountains, just north of the Sepik River and 265 river miles from its delta. 131 This small mountain system, not more than twenty square miles in area, is 133 bounded on the south and west by the Sepik and a lake formed by a former oxbow in the river, and on the east and north by the vast rolling watershed 133 of the river which stretches to the foothills of the coastal ranges. It consists of a primary orographical feature in the shape of a letter s, plus a series of short arterial ridges running off in all directions. From tip to tip as the crow flies the system measures a little over five miles in length. The slopes of these ridges are precipitious; in climbing it is often necessary to dig one's feet into the earth or hold onto vines to avoid falling. A dense forest of large trees covers the ridges and extends down to meet a sago swamp just above the level of the Sepik. The highest point, Ambunti Mountain, rises 1,520 feet above sea level.

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[113] 1 For the following orientation, certain materials are quoted from the published reports on the Kwoma listed below:

"Kwoma Culture," John W.M. Whiting and Stephen W. Reed, Oceania, Vol. IX, No. 2, December 1938, pp. 170-216.
Becoming a Kwoma, John W.M. Whiting, Yale University Press, 1941.